

Delivering paediatric critical care in humanitarian settings



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In resource-limited settings with high burdens of preventable illness and poor access to preventative and curative health care,¹⁻⁵ many children become critically ill, requiring immediate lifesaving interventions. These needs increase rapidly during humanitarian emergencies—whether natural or man-made disasters, conflict, epidemics, or the collapse of existing health-care systems—and are often coupled with an even more acute scarcity of resources.⁴ For these reasons, providing appropriate, safe, and context-adapted paediatric critical care is an important focus of action for the medical humanitarian organisation Médecins Sans Frontières (MSF; also known as Doctors Without Borders). Here, we describe some contextual challenges that shape our strategy for paediatric critical care and key lessons learnt from its implementation in a wide range of settings.

The challenges to provision of paediatric critical care for global health actors are abundant. Diseases and conditions such as malaria, malnutrition, and vaccine-preventable illnesses can quickly escalate to catastrophic levels,^{3,4} yet in the midst of a crisis, children's needs are often neglected. Lack of health literacy, which prevents timely recognition of illness, coupled with poor health-care access and competing survival priorities frequently mean that families might delay or be unable to seek care for children until even normally treatable illnesses become life-threatening.² Consequently, the numbers of critically ill children needing care can far exceed the capacity of emergency responders, including MSF.

Within the health-care facility, particular clinical challenges stand in the way of meeting such an acute need.^{1-4,6} One such challenge is that limitations or absence of advanced services—such as diagnostic and monitoring capacity, non-invasive or mechanical ventilation, enteral nutrition, or central vascular access—render responders heavily reliant on clinical acumen to diagnose and treat the critically ill. Another challenge is that antibiotic use in these circumstances is empirical, all the while involving decreasingly effective drugs.⁷

In terms of the responders themselves, most health-care workers are generalists, often without training in paediatric critical care or even in paediatrics. Yet they will be faced with patients in critical or terminal conditions, anywhere along the health continuum from community assessment to hospital discharge, and often without the

typical peer support or team structures inherent to high-resource paediatric intensive care units (PICUs).

How, then, can MSF appropriately train and support these staff, working in some of the most challenging professional contexts imaginable? And how can we ensure that paediatric critical care is provided in a safe, context-dependent way?

The first lesson learned from MSF's experience is that paediatric critical care is only as good as the basic care supporting it,¹⁻⁵ but the consistent provision of basic care can be extremely challenging in humanitarian contexts. We must advocate—among our teams, local partners, and other stakeholders—for appropriate paediatric areas, early warning and monitoring practices, medication formulations, supplies, and documentation,^{2,4} even when working in tents or in war zones. These areas need trained nurses, without whom quality paediatric critical care is impossible; if necessary, we must bring in relief teams and provide training when experienced staff have fled. It is important that hospital practices and team structures are standardised to help to ensure quality care despite the surrounding crisis. We should work with our teams on first-line interventions—vaccination, infection control, empirical antibiotic use, and disease screening—to minimise the need for paediatric critical care.⁵

Beyond that, establishment of organisational systems to triage, identify the care needed, and commence care



Neonatal intensive care unit at Boost Hospital (Lashkar Gah, Helmand province, Afghanistan), which is run by MSF in partnership with the Afghan Ministry of Public Health

rapidly^{1,8} is also key to our approach. If 300 families are waiting in a line for a medical consultation, a rural village is struck by a meningitis outbreak, or migrants are rescued at sea, the sickest children must be found and cared for first.

Likewise, evidence-based standardisation of medical practices is essential.^{2,5} However, there still needs to be an adaptation process for the context, which can vary widely across resource-limited settings and humanitarian emergencies. To provide guidance appropriate for these varied contexts, we have developed policies, frameworks, and toolkits—accessible guides on why and how to launch or improve provision of paediatric critical care; MSF-specific paediatric and neonatal clinical and medication guidelines; and simulation-based training programmes to help generalists to recognise, stabilise, and treat critically ill children.

Another crucial lesson has been how to balance consistency with capacity, infrastructure, and resources. What can be safely done in a mid-resource PICU in Lebanon could be impractical or hazardous in a low-resource PICU in rural Niger, for example. We have therefore been defining levels of care for MSF intensive care areas, adapted from those used routinely in other PICUs worldwide.⁹ Levels range from zero (including basic yet not universally accessible interventions) up to the rare level three (similar to high-resource PICUs), each implemented when feasible and where appropriate. By allocating care rationally, we can provide better, more efficient care in a more sustainable way.

Often, however, there are gaps in the evidence for provision of paediatric critical care in resource-limited settings,^{2,4} particularly emergency settings; a recent example is the lack of clinical evidence to guide treatment of cholera in malnourished Yemeni children.¹⁰ MSF therefore strives to play an instrumental role in creating and sharing guidance where needed.

In all aspects of MSF's action, new emergencies and epidemics constantly force us to rethink what we know and how we work, to push boundaries and to overcome limitations. We must explore novel ways to use existing

biomedical, laboratory, and imaging modalities, such as building infrastructure and upskilling teams to implement non-invasive ventilation in resource-limited settings, or expanding the use of point-of-care ultrasound to diagnose common paediatric conditions. Beyond that, we must advocate for the creation of devices and medications adapted to often unstable and unpredictable humanitarian contexts, and address gaps in the medical evidence on improving care for critically ill children. Children—the smallest, most vulnerable patients—are most affected by humanitarian disaster, and it is our responsibility to give them the care that they deserve, anywhere and at any time.

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